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ADDED-VALUE LOGISTICS SERVICES TO BE OFFERED IN DEVELOPING COUNTRIES

Report by the UNCTAD secretariat

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Executive summary

This report highlights the importance of logistics to an economy. It describes the typical operations of supply, production and distribution processes, and emphasizes the possibility of outsourcing a number of these operations to local enterprises with the appropriate experience to perform them. Also, it suggests that Governments in developing countries and countries in transition should contribute to the "re-engineering" of their international trade-oriented and productive sectors so that they can become part of global production schemes.

Chapter I presents the basic elements of logistics and explains how logistics contributes to the creation of value in a national economy. It also describes the challenge faced by developing countries in the field of logistics. Chapter II outlines the types of added-value logistics services that are currently needed by the industrial and commercial sectors of a country. It stresses that most of these services can be outsourced, creating opportunities for potential local services providers. Chapter III suggests possible actions that Governments could initiate to foster the development of local logistics services.

CONTENTS

Chapter		Paragraphs
	Introduction	i - vi
I.	Logistics and national economy	1 - 20
II.	Types of added-value logistics services	21 - 49
III.	Governments' contribution to the development of logistics services	50 - 66

Introduction

(i) As part of its technical cooperation and training activities, UNCTAD organizes workshops and seminars in the fields of international trade and transport. Emerging from these activities, is *inter alia* a recurrent request is for practical information on basic logistics services supporting the economic development of a national manufacturing industry. This report, which was envisaged in the Programme Budget for the 1996-1997 Biennium[1] but had to be postponed, presents to interested government institutions and commercial parties a brief review of the potential offered by efficient logistics services in developing countries and countries in transition.

(ii) The recent developments in the globalization of production of goods and services in the field of information technology and in the management of industrial supply chains are having a considerable impact not only on developed countries but also on developing countries and countries in transition.

(iii) The experience of the most advanced economies clearly demonstrates that major savings can be achieved through the well-coordinated management of flows of goods and information in all sectors of an industrialized country. These savings generate value for the economy.

(iv) Developing countries and countries in transition should learn from this experience and apply logistics tools to their national industrial sectors. Whatever the industrial branch concerned, local enterprises should revise their supply, production and distribution processes with a view to identifying their "*core business*" operations and outsource those operations that could be performed more efficiently by outsiders.

(v) While logistics operations are already being performed in many countries, it is becoming essential to give a dynamic character to these operations in order to make them flexible and adaptive to the ever-changing conditions (changes in markets, technological changes, fluctuations in foreign exchange, etc.). Today's solutions might not be valid tomorrow. International and national economic intelligence is essential for logistics managers so that they can take appropriate actions whenever a basic cost-affecting parameter is changed.

(vi) Although most of the logistics operations performed in a country are performed by the private sector, Governments have an important role to play in providing the proper legal and institutional environment required by efficient private sector initiatives. In so doing, they will help foster long-lasting partnerships for growth and development.

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1 *Programme Budget for the Biennium 1996-1997* (TD/BWP/98), Subprogramme 4 (SIDTE), under Activities (3 Published material/Non-recurrent publications), p. 19, 1996.

Chapter I

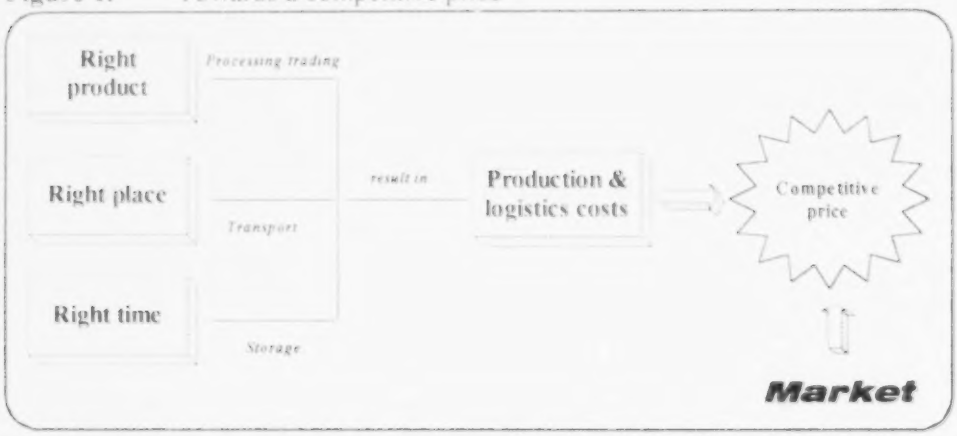
Logistics and national economy

This chapter introduces the basic elements of logistics and explains how logistics contributes to the creation of added value. It concludes by describing the challenge faced by developing countries and countries in transition in the field of logistics.

A. Economics of logistics

1. To maintain or improve its share of the market, an enterprise must offer the right product, at the right place, at the right time and at a competitive price (figure 1). This implies that four basic functions must be correctly performed: provision of, or access to, the goods (through manufacturing or trading); storage of the goods; their transport; and their marketing. Manufacturing creates, and trading locates, goods which result in customers' satisfaction (right product); storage holds these goods until they are needed (right time); transportation brings them to where they are needed (right place); and marketing results in the transfer of the goods to the person to whom they are useful (competitive price).

Figure 1. Towards a competitive price



2. To coordinate these functions, the enterprise must also establish an *information management* function which maintains control of all the movements of the goods and the related transactions, including order processing, invoicing and other commercial or legal documentation (including checking, inspection, weighing and clearance) entailed by the flow of materials/goods.

3. For a given (right) product, the arrangements concerning storage, transport and the related information management constitute the logistics strategy of the enterprise, aimed at satisfying consumers' demand.

4. "Logistics" is defined by the American Council of Logistics Management as: "*the process of planning, implementing and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods, and related information from point of origin to point of consumption for the purpose of conforming to customers' requirements*".

5. Over the past few decades, application of logistics has become crucial as a consequence, *inter alia*, of:

(a) The need for better monitoring of labour organization in manufacturing processes;

(b) The increase in the cost of certain production factors (energy, money) and the reduction in others (information technology); and

(c) The need for a reduction in the number of distribution channels through industrial and commercial concentrations.

6. For a defined level of quality, an enterprise must seek to minimize all its production and logistics costs. For a given production process, it will therefore look for the lowest overall costs of the delivered products.

7. The combination of three technically related types of costs -transport, handling/storage, and administration-, under the "logistics costs" heading defines the basket from which alternative solutions must be selected. The area within which the optimum solution is to be found therefore becomes much wider and allows the decision maker to choose the optimum logistics solution. This is more important for the enterprise than the optimum transport solution. The isolated optimization of individual logistics functions will not necessarily lead to the overall optimum solution.

8. In practical terms, this means that alternatives can now be compared. In some cases, this might result in higher transport costs, but with these more than offset by reduced handling/storage and administration (financial, order processing, etc.) costs. Consequently, the inefficiency or lower productivity of one particular mode or interface may be acceptable if it is offset by proportionately greater gains for the entire system.

9. Logistics makes the most cost-efficient use of the available assets of an enterprise in order to offer consumers a quality product in the best commercial conditions (with regard to space and time). It has an impact on the key decisions of an enterprise regarding potential trade-offs between production processes, transport and handling/storage operations, and information management.

10. As regards **decisions with long-term consequences**, logistics may influence the location of major investments in infrastructure (location of a production plant, location of warehouses, etc.). As regards **decisions with medium-term consequences**, logistics may determine major needs in terms of transport, storage and handling equipment at the

enterprise's various locations, outsourcing strategies for ancillary services (e.g. information management), etc. As regards **decisions with short-term impact**, logistics may specify the details of the transport, handling and storage operations, including the schedule of services, availability of appropriate equipment and personnel.

B. Logistics and added-value chains

11. Whenever an enterprise transforms raw materials or assembles semi-finished components into more elaborated products (semi-finished or finished products), or whenever an enterprise transports or stores these goods, it adds qualities to a product. Therefore, the enterprise adds **value** to the product it processes. The enterprise becomes a place where the value of the goods increases. The added-value created by the enterprise is the difference between sales revenue and the cost of materials and services which entered the production/trading process. The enterprise uses inputs in the form of manpower, equipment, materials and services.

12. These inputs have a significant impact on a country's economy. Indeed, the creation of value by the enterprise constitutes its contribution to national production. This added-value is used to pay the various parties involved in production: the labour force (wages and social charges); the capital (through distribution of dividends and profit, or increased assets); and the State (through taxes and excise).

13. Logistics is therefore a source of value addition. By streamlining transport, storage and handling operations, by reducing inventories (and the corresponding financial and storage costs) and by making the most cost-efficient use of available assets, logistics reduces the overall cost of the delivered goods while increasing their time and space utilities (right time, right place). As a result, the price of the delivered goods might become very competitive, and thus increase profit for the enterprise and/or increase its market share. The added-value created by the enterprise, within its segment of the production/consumption cycle, is therefore likely to increase. Appropriate use of logistics can generate wealth for the country by adding value and creating a competitive advantage for the country's business.

14. The evolution of logistics costs in the economy of the United States of America is an interesting example (figure 2). While the gross domestic product (GDP) increased by 240 per cent between 1982 and 1986, logistics costs increased only by 155 per cent. As a result, the participation of logistics costs in GDP fell from 16.35 per cent to 10.51 per cent. This happened, experts say, because "*retailers and manufacturers are storing less inventory, as they demand smaller and more frequent shipments of everything from blue jeans to beer*".[2]

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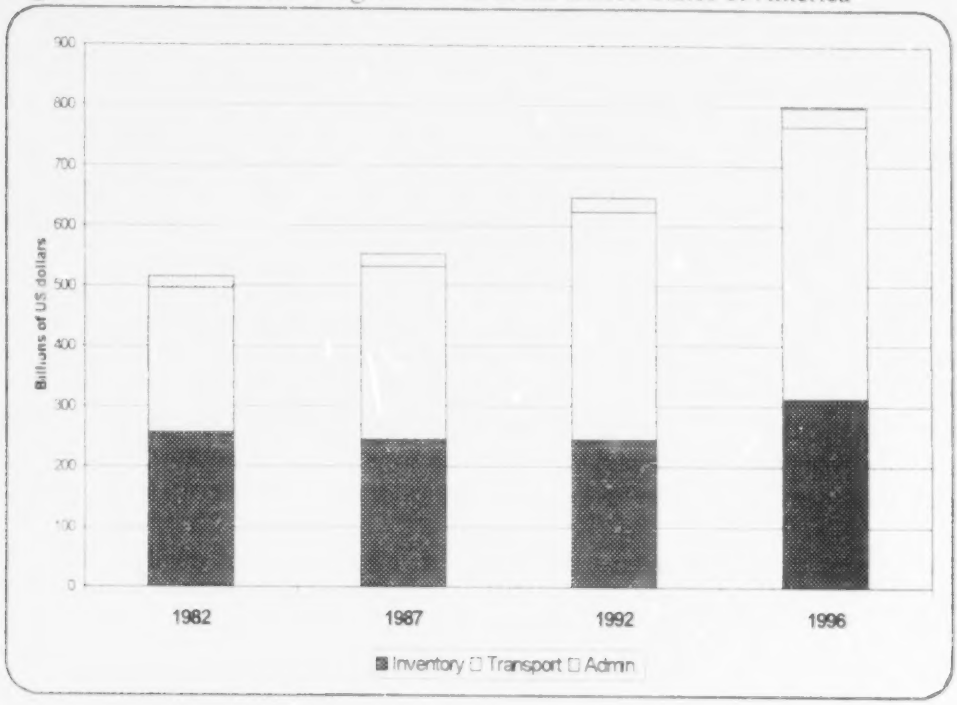
2 "Letters to the Editor", in the Opinion (Web) Page of the *Telegraph Herald*, 1997 (http://www.wcinet.com/th/).

Figure 2. Evolution of logistics costs in the United States of America



	1982	1987	1992	1996
Total logistics costs (in billions of US dollars)	515	552	647	797
Gross domestic product (in trillions of US dollars)	3.15	4.54	5.95	7.58
Logistics costs/GDP (%)	16.35	12.16	10.87	10.51

Source: R.V. Delaney, "State of Logistics Report 1997", an annual report on logistics in the United States, reported by the *Logistics Management* staff on the website (http://www.manufacturing.net/magazine/logistic/).

C. The challenge of logistics in developing countries

15. In recent years, three dominant and interrelated themes have changed the solution to the logistics equation in enterprises around the world:

(a) **Globalization.** Logistics systems are increasingly challenged to reduce costs and increase customer service while enterprises are expanding international operations in search of new markets, new materials sourcing and new manufacturing sites;

(b) **Information technology.** Newer, faster, and cheaper computer hardware, software and telecommunications technology allow aggressive enterprises to substitute inexpensive information assets for expensive inventory, transportation and other traditional logistics costs; and

(c) **Supply chain management.** As enterprises strive to build closer working relationships with key suppliers and key customers, well-integrated logistics processes are key components of successful supply chain management.

16. The continuing transport and communications revolution has brought about an enormous reduction in the importance of distance (or physical separation) as a natural barrier to trade and investment. Lower transport costs have extended the reach of global production to labour-intensive manufacturing, allowing the dispersion of production stages over much longer distances, even for products with low value-added margins. At the same time, the high costs associated with inventory holdings have led enterprises to review their supply chain processes and to take advantage of information technology.

17. Developing countries used traditionally to be thought of as the sources of raw materials for the manufactured outputs of the industrialized countries, and the availability of low-cost labour was considered to be an advantage to attract foreign investments into local productive sectors. This situation is changing drastically.

18. Developing countries are now heavily dependent on their place in global production and distribution chains as a major source of growth. At the same time, the location of production and distribution activities has become more volatile, and the effort to maintain a position within these chains has become more competitive. Consequently, the problems and difficulties that private enterprises and Governments face for the efficient management of global logistics have also changed drastically. It is now appropriate to re-examine the local characteristics of logistics in the light of the efficient management of global value chains with an eye to supporting adaptation and adjustment in a dynamic environment.

19. Developing countries are confronted with the fact that any trading nation in today's market is forced to adjust to the trade management practices of its partner countries and, by implication, to the practices of the international logistics and transport industry. In other words, the commercial success of an international trade-oriented industry in a developing country depends more and more on its ability to effectively tie into the emerging international trade logistics service networks.

20. Table 1 summarizes the main strengths, weaknesses, opportunities and threats (SWOT) faced by developing countries regarding their logistics strategies. It highlights the challenge at stake in those countries, not only for their industries but also for their Governments.

Table 1.
SWOT assessment
regarding logistics in developing countries

Factor	Assessment
Strengths	Increase in regional and international trade resulting in increased transport and logistics demand; Target population (consumers) with increasing needs for trade-related services.
Weaknesses	Lack of local transport and logistics services expertise; Deficient transport infrastructure (congestion, poor conditions, etc.); High logistics costs.
Opportunities	Possibility of creating competitive advantages for local products; Possibility of securing greater control over transport, processing, packing and distribution; Consequences of WTO-generated reduced barriers to trade and investment; Falling costs of international communications and transport.
Threats	Developing countries traditionally exported primary commodities with little value added; Inelastic supply while importing countries are generally able to choose from alternative sources of supply; Availabilities of substitutes for exported commodities; Traditional reliance of exporting countries on international buying cartels or distributors who do not always share their gains with the supplier; Barrier of protective tariffs and quotas and of high transport costs; Lack of control over means of international transport to deliver exports; Obstacles facing developing countries in the form of appropriations of value added by the various (foreign) links in the logistics chain up to the final consumer.

Chapter II

Types of added-value logistics services

After introducing the basic logistics operations required by a manufacturing industry, this chapter discusses the outsourcing of logistics operations, before describing the range of services which might be offered in the area of distribution.

A. Basic logistics operations[3]

21. The supply, production and distribution processes of a manufacturing industry (or enterprise) rely on a series of operations involving transport, handling, and storage of goods, as well as on information management relating to these operations.

22. These operations, called *logistics operations*, are often grouped into three categories, according to their position with respect to the production process:

- **Inbound logistics operations:** operations preceding the production process (supply side);
- **Outbound logistics operations:** operations following the production process (distribution side); and
- **Production logistics operations:** operations directly related to the production process.

23. Logistics operations cover two types of flows: **physical flows** and **information flows**. Operations related to physical flows refer to the movement of goods, while operations related to information flows refer to any other operation. For example, a stock management operation dealing with stock levels and supply orders is an *information processing operation*, while a handling/storage operation which requires information on stock input and output and on localization of goods is a *physical operation*.

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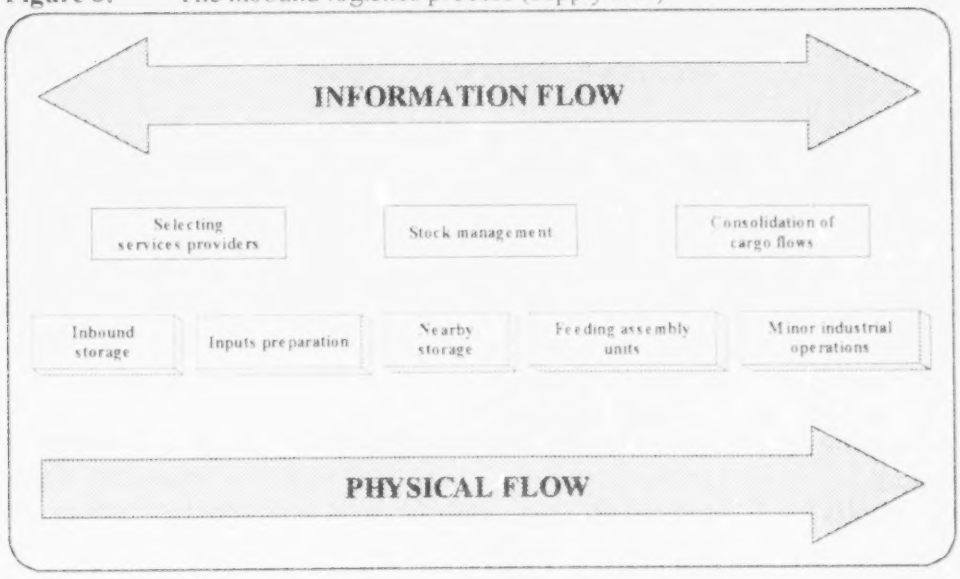
3 See J. Damiens, "*Pourquoi et comment les transporteurs évoluent vers les prestations logistiques*", *Logistics Magazine*, No. 106, April 1996, pp. 104-114.

Figure 3. The inbound logistics process (supply side)



A.1 INBOUND LOGISTICS: *PHYSICAL FLOW OPERATIONS*

Inbound storage

The enterprise might request a services provider to manage the stock of raw materials, components or subsystems used in its production process. This is a "*typical*" storage operation. The storage facility might be located at the supplier's plant, at an appropriate location between the enterprise's production units or near one of these units. The facility's characteristics depend essentially on the nature of the stored goods and their packaging (bulk, heavy load, containers, pallets or handling boxes). The facility might need specific storage means and particular handling rules and procedures. In addition, depending on whether or not the storage operation is integrated in a just-in-time (JIT) process, stock volume/quantity might be subject to wide variations or be smoothed. The integration of the supplier's production operations into a JIT process may result in a stock reduction for the enterprise.

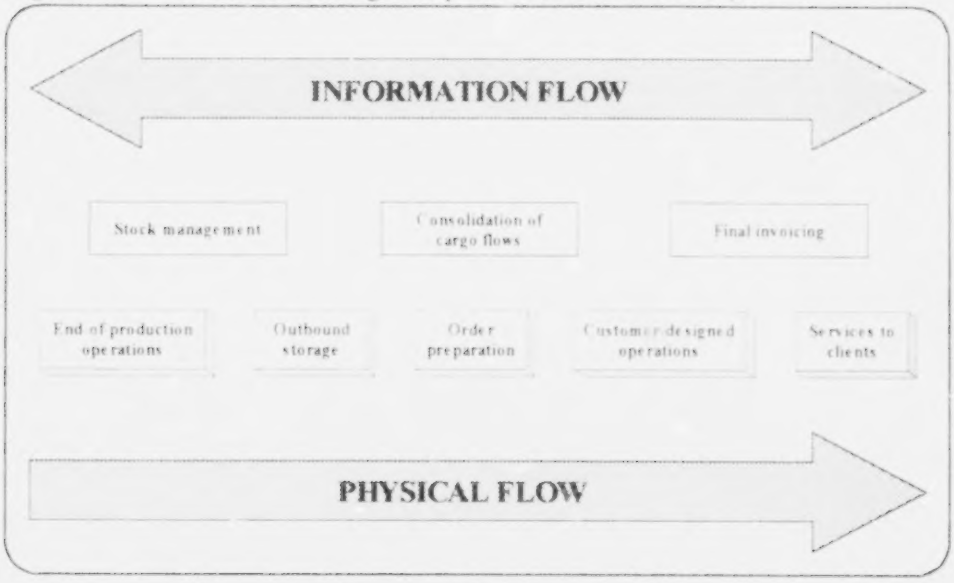
Inputs preparation

This operation refers to the order preparation based on goods kept in the inbound storage facility. Orders are directed towards the subsequent unit, either a production/assembly unit or a nearby (buffer) storage facility. Depending on the supply requirements applicable to that subsequent unit (on demand, according to a programme, or JIT), this operation will cover

	either small quantities with a high frequency of requests or large quantities with a low frequency of requests. This implies very different supply regimes in terms of number and profile of requests (quantity/weight/volume).
Nearby (buffer) storage	This type of storage facility is generally used when the production/assembly unit requires tight real-time supply. Quantities of stock are a *security stock* which absorbs fluctuations in the supply process. Nearby storage facilities used to be common in the automotive industry. However, the trend among car manufacturers towards requiring suppliers to be located close to the production site is reducing the need for facilities of this sort.
Material supply to production/ assembly units	This operation refers to the delivery close to, or directly into, the production chain. In a tight real-time operation, each article/ piece/part - duly identified - is positioned in front of, or on, the production equipment which is going to utilize it within the next few minutes.
Minor industrial operations	These operations refer to on-the-spot preparation of inputs or to minor production operations performed just before the main production operations, such as unpacking of parts, preparation of products, quality tests and subsystem assembly (e.g. tyre on wheel).

A.2	**INBOUND LOGISTICS:** ***INFORMATION FLOW OPERATIONS***
Selection of operators	The third-party logistics provider defines with his client the terms of reference regarding the provision of transport services and prepares the corresponding bid offers. He will proceed with the selection of the most suitable operators. This operation is usually performed at the request of the client.
Stock management	This operation covers the financial management of stock levels and the triggering of inputs supply orders as soon as required. It complements a storage operation.
Consolidation of cargo flows to be delivered to the factory	This stage corresponds to the organization of inbound transport operations. Consolidation might concern cargo proceeding from one or various suppliers, to be delivered to one or various destination sites.

Figure 4. The outbound logistics process (distribution side)



A.3 OUTBOUND LOGISTICS: *PHYSICAL FLOW OPERATIONS*

Operations at the end of the production line

These are the last operations in a production process; they might be complementary operations such as conditioning and packaging, labelling and marking, quality tests and controls; ultimate assembly operations to comply with clients' requirements; and configuration and testing of products (e.g. computers).

Outbound storage

These are classic storage operations for complete handling units (in central storage facilities), high-rotation products (liquids, dry bulk, large-volume goods) or partial units to be split and distributed (regional storage locations). As in the case of inbound storage operations, depending on the nature of the goods and on the profile of the activity, these operations might be very different one from the other (handling means, types of storage, operating procedures, etc.).

Order preparation

This covers the selection of the ordered quantities and their packing; these two operations are performed consecutively or simultaneously. This type of operation complements the outbound storage operation. It might cover the computerized administrative processing of orders received directly from

clients/consignees. It might be triggered at the start of a product-launching operation or when issuing production orders from clients' files. The timing for triggering this operation is particularly important in terms of managing priorities and balancing the workload (in one case, the work capacity is controlled by the third-party logistics services provider, while in the other this is implied since it is managed by whoever is generating the order).

Modification or reconditioning of the goods

These operations are similar to the ones performed at the end of the production line (see above). They might be needed when there is a change in the final destination of the products (change in sales unit), when the products are subject to promotional offers or when there are changes in price. They might be performed during the initial phase of a storage operation, while products are being stored or during the order preparation.

Services to clients

These are complementary services, usually performed upon delivery of the goods: storage on shelves at market-place, unpacking, set-up and demonstration of equipment, assembly of furniture, etc.

A.4 OUTBOUND LOGISTICS: *INFORMATION FLOW OPERATIONS*

Stock management

Like the inbound stock management operations, this is performed jointly with the storage operations. Stock management might cover various sites at the same time in the case of distribution networks. These operations can trigger complementary operations such as the modification and reconditioning of the goods, as discussed above under "Outbound logistics: Physical flow operations".

Consolidation of cargo flows

This operation refers to the organization of the outbound transport operations.

Final invoicing

This operation is the continuation of the order preparation operation. It covers the invoicing of the goods to the final client, on behalf of whoever has issued the order. Electronic data interchange (EDI) plays an important role in this field, within the framework of EDI norms or other accepted standards.

B. Logistics operations and the provision of supply and distribution services

24. Depending on the type of industry, some of the logistics operations are more sophisticated and complex to perform than others. They might require specific know-how, equipment or facilities, implying investments in assets and consequent operating costs. The enterprise must therefore define the boundary between operations that are part of its production process (the so-called *core business*) and those that could be performed externally, perhaps in a more cost-effective manner than if they were to be performed internally. In other words, the enterprise must decide which operations are part of its contribution to the creation of value, and which ones are not.

25. Operations that can be performed externally, in a more cost-effective manner than if they were to be performed internally, should be outsourced to other industries or to services providers.

26. The main benefits of outsourcing are:

(a) **Reducing or controlling operating costs.** Access to an outside provider with lower cost structure is one of the most compelling immediate benefits of outsourcing. It results in a cost reduction when compared with the total cost of establishing and maintaining internal capabilities.

(b) **Making capital funds available.** Outsourcing reduces the need to invest capital funds in non-core business functions. This makes capital funds more available for core areas. Outsourcing can also improve certain financial measurements by eliminating the need to show a return on equity from capital investments in non-core areas.

(c) **Generating a cash infusion.** Outsourcing can involve the transfer of assets from the customer to the provider. Equipment, facilities, vehicles and licences used in current operations by the enterprise all have a value and can be sold to the provider as part of the transaction; this results in cash payment.

(d) **Reducing risks.** Outsourcing results in a risk reduction for the enterprise by sharing with the provider the investment risks associated with rapidly changing technology while at the same time increasing the enterprise's flexibility.

(e) **Securing resources not available internally.** Some companies outsource because they do not have access to the required resources within the organization. For example, if an organization is expanding its operations, especially into a new geographical area, outsourcing may be a viable and important alternative to building the needed capability from the ground up.

(f) **Gaining control of difficult-to-manage or out-of-control functions.** Outsourcing may be a viable alternative for addressing these types of problem areas involving non-core competencies. An important point, however, is that strategic sourcing does not eliminate the need for management responsibility.

27. The logistics operations described above could be outsourced. They constitute the basis for potential physical supply and distribution services. These services cover:

(a) The movement of goods; and

(b) The related services while goods are idle at transfer points (logistics infrastructure).

28. For example, in the case of **outbound logistics** (distribution), there are three essential stages:

(a) Movement towards a transfer point, or pre-(main) transport operations;

(b) Services at the transfer point; and

(c) Movement towards the final consumer, or post-(main) transport operations.

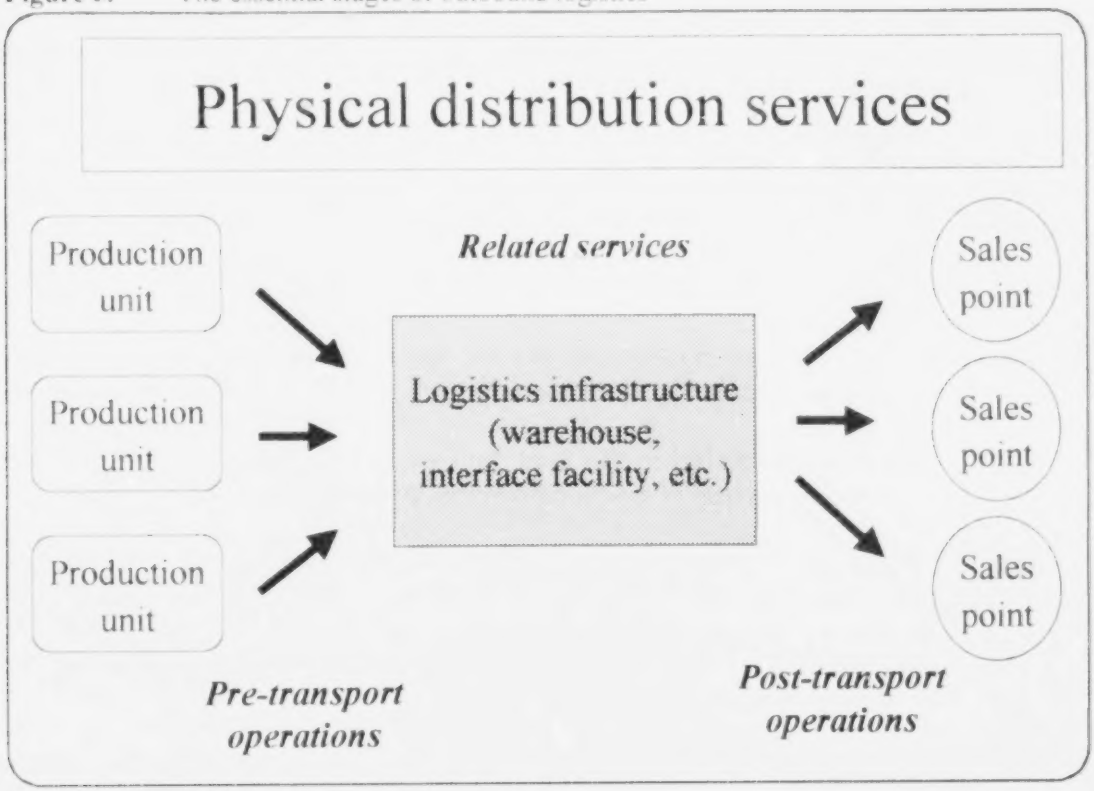
29. Pre-transport operations correspond to the movement of consolidated unit loads by trains (block-trains) or by trucks and trailers to take advantage of bulk transport operations.

30. Post-transport operations correspond to the diffuse movement of smaller parcels by small or medium-size vehicles. These operations lead to operations research solutions to optimize routes (the "salesman shortest route" algorithm) or to reduce the number of empty return trips.

31. Services at transfer points correspond to operations described earlier, such as order preparation and modification of goods.

32. In the case of **inbound logistics** (supply), similar stages can be identified: pre-transport operations here correspond to the collection of raw materials or parts; services at transfer points include inputs preparation or minor industrial operations; and post-transport operations correspond to the movement of consolidated unit loads.

Figure 5. The essential stages of outbound logistics



33. The three categories of logistics operations (inbound, production and outbound) contribute differently to the creation of added-value from the services provider's perspective, as can be seen in the case of French industry (table 2).

Table 2.
Distribution of logistics costs in French industry

Stages	Cost items	%	%
Supply (Inbound)	Transport	12.0	**29**
	Storage	8.5	
	Inventory	8.5	
Production	Production	7.0	**7**
Distribution (Outbound)	Transport	32.0	**64**
	Storage	15.4	
	Inventory	6.5	
	Order processing	10.1	

Source: Study by BIPE Conseil, Paris, 1993.

34. Logistics services providers tend to focus on those related services that offer them the possibility of creating a greater added-value than the (pre- and post-) transport services themselves.

35. Such services can cover:

(a) The related services performed at interface points, corresponding to the technical operations related to physical supply/distribution and to the management operations, including information management;

(b) Operations associated with the change of mode (or means) of transport: reception and control of delivered goods, handling and warehousing, etc.;

(c) Operations related to the final delivery of the goods: order preparation, tailored-assembly of loads, packaging, price labelling, etc.;

(d) Management operations: order processing, follow-up on consumption dates, stock management, etc.;

(e) Computer-based management: stock management, fleet management, order management, accounting, teletransmission, etc.

36. To manage efficiently a series of logistics operations, a third-party logistics services provider must establish a system for continuous and reliable information and follow-up of the flows and tasks. Such a system allows not only the smooth coordination of the operations, but also the continuous follow-up of the performance of the various operators contracted by the provider.

37. The information must be readily accessible for consultation by the client. This client usually wants a system providing regular real-time information on the goods in the third party's custody; a systematic printout of delivery certificates; real-time information on possible problems; and regularly updated information on performance indicators such as "problems ratio".

38. As a third-party logistics provider succeeds in covering a wide set of operations, he develops his own expertise, and in some cases might provide assistance to his client before making his services offer. If he is capable of providing services to various added-value chains, he will be in a position to consolidate demand and to invest in appropriate equipment, which may increase his share in the outsourced-services market.

C. Outsourcing logistics services

39. Logistics operations can be provided by one and the same enterprise or be outsourced. As seen above, the performance of logistics operations requires access to handling equipment, storage facilities and computerized information systems. While in

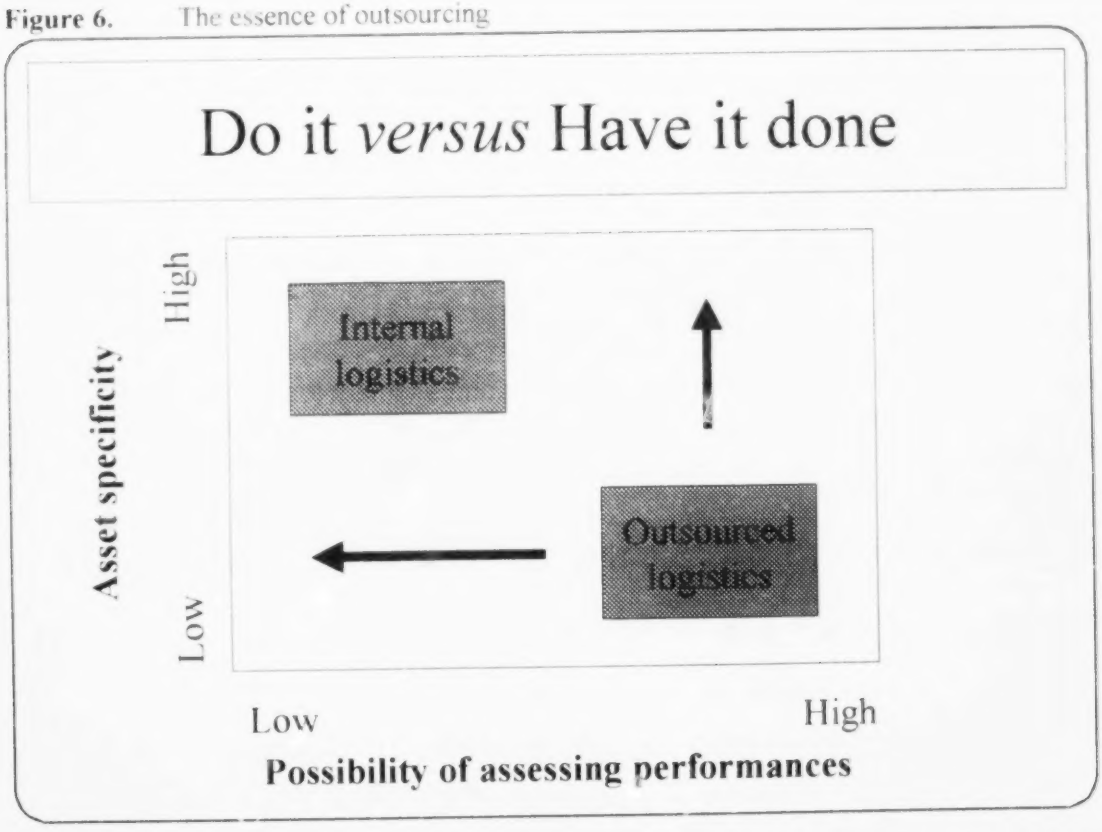
most cases, such equipment, facilities and systems can easily be found to satisfy the most common requirements of an enterprise, in other cases they have to be specific to the characteristics of the products or the markets to be satisfied.

40. The enterprise's decision to outsource its logistics needs depends primarily on the specificity of the required assets for organizing the logistics operations, but also on the possibility of assessing the performances of logistics services providers that may be contracted.

41. In some industrial sectors it is possible to assess the logistics costs and the quality of the required physical supply and distribution services on the basis of well-defined and precise criteria (e.g. administrative costs of order processing, number of claims, fulfilment of delivery dates). However, that is not always the case.

42. In general terms, logistics operations will remain within an enterprise when the specificity of assets required by the operations is high and the assessment of performances is difficult. Otherwise, outsourcing is the solution (figure 6).

Figure 6. The essence of outsourcing



43. Not all logistics operations are outsourced in the same way. One survey shows that operations on the distribution side (outbound logistics) are more often outsourced than operations on the supply (inbound logistics) side (table 3).

Table 3.
Participation of outsourcing in logistics operations

Stages	Logistics operations	Percentage outsourced
Inbound	Transport	59
	Storage	16
Outbound	Intermediate transport	55
	Final transport	89
	Storage	60
	Inventory	31
	Reconditioning	36
	Order processing	42

Source: Study of the French industry, by Aslog/Brossard, Paris, 1993.

D. Main profiles of logistics services

44. Different branches of industry require different types of logistics operations. Depending on the technical and organizational requirements, the services requirements and the information requirements, profiles of logistics services can be grouped together in three sets: high, medium and low demand profiles, as shown in table 4.

45. A potential logistics services provider will therefore have to specialize in a particular industrial branch. For that branch he will have to develop the necessary knowledge of the products and of its specific logistics requirements.

46. His first task will be to analyse the market and segment the different industries into groups with similar expectations in terms of outsourced services. Segmentation criteria must take into account at least two important elements that influence potential enterprises' choice regarding their logistics strategy: price and quality of service.

47. While price is self-defined, quality of service can be assessed on the basis of:

(a) Reliability/regularity of the services provider;

(b) Speed in the performance of the service;

(c) Conformity of the delivered goods; and

(d) Capacity to provide regular and reliable information on the status of the service offered and on the expected time of arrival of the product at destination.

Table 4.
Demand profiles of logistics services

Demand profile	Examples	Technical and organizational requirements	Service requirements	Information requirements
HIGH	Supply of parts for industrial production; distribution of high-value industrial products and spare parts	Integrated transport processes; special transport facilities; flexible and demand-oriented planning and scheduling (hours) at short notice	Absolute reliability; speed; high level of delivery standard; zero-mistake strategy; securing and warranting quality; merchandising	Integrated information systems; continuous computer data exchange; availability of status and inventory data
MEDIUM	Trading and distribution of medium-value goods; industrial products in batch production	Integrated transport processes; efficient automated storage systems; bulk orders; medium-term scheduling periods (minimum 5 days)	High degree of reliability; regular, standardized services requirements regarding availability and delivery time	Regular, standardized exchange of information; conventional transmission of data; data regarding individual consignments and stocks
LOW	Products with low logistics costs; mass products and raw materials	Shipment in bulk; specialized vehicles and handling equipment; longer-term scheduling periods (several weeks)	Demand-oriented reliability; standard services for warehousing, packing and transport; providing adequate capacity	Exchange of mass data with high degree of stability; data regarding individual consignments and overall inventory

Source: Dr. H. Stabenau, *Trade logistics management and related transport infrastructure and services*, Deutsche Aussenhandels-und Verkehrsschule - Research Institute, Bremen, May 1988.

48. A market analysis based on these criteria would lead to groupings such as the ones shown in table 5, recognizing that each enterprise values differently the price and the quality of services, depending on its own economic characteristics and on the characteristics of the products concerned. These groupings have been made on the basis of three key characteristics of a product: its market value, the situation of its market with regard to competition, and the care required in handling the product.

Table 5.
Typical groupings of products according to the logistics services required

Market segment	Criteria for segmentation	Examples of types of enterprises	Criteria likely to be used by enterprises for selecting services providers
1	Marketing value: **high** Competition: **strong** Product care needs: **high**	Hi-fi, video, computers Garments Cosmetics	Information on status Conformity when delivered Price Reliability/regularity Speed
2	Marketing value: **high** Competition: **strong** Product care needs: **low**	Delicatessen and high-valued foodstuffs	Conformity when delivered Price Speed
3	Marketing value: **high** Competition: **moderate** Product care needs: **high**	Spare parts	Speed Information on status Price
3a	Marketing value: **high** Competition: **moderate** Product care needs: **high** (fragile products)	Furniture	Conformity when delivered Price Reliability/regularity
5	Marketing value: **low** Competition: **strong** Product care needs: **high**	Phytosanitary products Canned foodstuffs Perishable products	Price Speed Conformity when delivered
6	Marketing value: **low** Competition: **moderate** Product care needs: **high**	Dangerous chemical products Paper	Price Speed Conformity when delivered
7	Marketing value: **low** Competition: **moderate** Prod. care needs: **limited**	Non-dangerous chemical products Building/raw materials	Price Reliability

Source: *Le marketing appliqué au transport*, Editions Celse, Paris, 1986.

E. Examples of distribution and outbound logistics services

49. As mentioned above, the most commonly outsourced logistics operations are those related to the distribution process (outbound logistics). In this area, eight basic segments of distribution services can be identified and characterized as follows:

(a) **Large store distribution.** These services basically concern the foodstuffs sector. Flows are increasingly fragmented as immediate storage space is reduced and converted into sale space. This results in frequent supply shipments. In addition to transport and storage operations, labelling and packaging operations are required.

(b) **Specialized store distribution.** These services refer to non-foodstuff products (e.g. garments, furniture) that are sold in specialized stores. They handle a large number of articles from multiple suppliers. Services to be provided include transport, storage and complementary operations, and must cope with the problem of consolidation of cargo.

(c) **Hi-fi and video products distribution.** These products are facing two major constraints: the remote location of suppliers, and the short and seasonal life cycle of the products. National networks and dedicated storage are usually required.

(d) **Cosmetics products distribution.** These services refer to differentiated and dispersed distribution networks and to worldwide industrial groups. These delicate and short-life products require high levels of service quality.

(e) **High-technology industry logistics.** These services refer basically to the computer industry. Products are fragile and expensive. Suppliers are limited, clients are professionals. In addition to distribution operations, they require complementary operations at the end of the production process and client services fully aware of the specificity of this industrial branch.

(f) **Automotive spare parts logistics.** These services generally rely on express carriers. With the trend towards the creation of stocks at clients' sites, temporary storage before delivery is often required.

(g) **Manufactured products logistics.** These services deal with the components and subsets of finished products used by the industry and to be integrated in a consumer product. They are part of inter-industry exchange logistics. Depending on the products and the size of the enterprises, the scope of these services extends from transport subcontracts to complex integrated systems.

(h) **Heavy industrial products logistics.** Dealing with raw materials, intermediate goods or heavy products (bulk foodstuffs, chemical products, building materials), these services depend very much on the physical nature of the goods and call for specific transport means and storage facilities, as well as specific services (stock management, bagging, palletization, distribution on request, etc.). In some cases, they require very specific services, e.g. for dangerous chemical goods.

Chapter III

Governments' contribution to the development of logistics services

Considering the importance of logistics in a national economy and the untapped demand for logistics services, this chapter presents some ideas on how a Government may contribute to the provision of logistics services by local operators.

50. The ability of developing countries and countries in transition to compete in global markets now rests on the successful development not only of their basic (transport) infrastructure, but also, and more importantly, on the establishment of effective mechanisms that facilitate the development of efficient trade transactions. It is therefore becoming essential not only to improve the quality of international transport and logistics, but also to adapt commercial practices to international standards and remove all unnecessary trade barriers.

A. Quality of international transport and logistics

51. The efficient operation of transport modes and of interface facilities is a necessary precondition for effective improvement of international trade and transport operations. It implies reduced physical barriers and institutional interference, and simplified legal regimes.

52. The physical condition and the performance of the inland distribution networks of developing countries and countries in transition are still far from adequate and are an obstacle to possible establishment of market-responsive trading arrangements.

53. Some developing countries have made inroads into global manufacturing value chains and have been quite progressive in developing very advanced intermodal systems supported by port liberalization. They often collaborate with experienced international transport and third-party logistics operators in order to meet the demand of global manufacturing value chains. These emerging trends indicate that establishing efficient intermodal transport systems will constitute an essential part of the core of global logistics excellence.

54. The challenge for developing countries and countries in transition, therefore, is to identify the essential transport infrastructure and logistics options that will allow them either to achieve or to maintain an active and competitive role in global economic integration.

B. Commercial practices and trade barriers

55. Quality service has become a key element in gaining competitive advantage. At the same time, public administrations and business communities are faced with an apparent inability to address effectively the ever more stringent requirements of foreign enterprises for reliable deliveries at increasingly short intervals and with low reject rates.

56. Therefore, Governments' actions should focus not only on improving the physical features (the "hardware") of transport networks, but also - as or more importantly - on adapting commercial practices to international standards and removing all unnecessary trade barriers. This involves *inter alia* improving the performance of transport operators and auxiliary services, changing the commercial behaviour of users, and introducing innovative relations between public institutions and transport providers and users (the "software") of international trade and transport.

57. In many developing countries and countries in transition, the laws and regulations which govern the conduct of trade and the organization of trade-supporting services and infrastructure have scarcely been changed since the time of their promulgation decades ago. These countries therefore face the challenge of designing regulatory provisions and organizational arrangements that will generate optimal use of existing physical network structures.

58. This challenge offers ample scope for creating synergies through public-private partnerships in financing and managing trade-supporting infrastructure and services, giving Governments the role of promoting rather than managing such synergies. In this context, public policy makers should focus on critical issues such as the preconditions for effective infrastructure, the environment and safety impacts.

59. Logistics systems have been largely developed by private-sector enterprises. Since those directly involved in the industries are best positioned to judge what is needed and how to optimize their systems, Governments should take advantage of this and ensure entrepreneurial freedom in choosing transport and logistical arrangements.

60. However, in some countries, the lack of strong industry associations that would take an active role in promoting such synergies constitutes an obstacle.

61. Another problem in many developing economies and countries in transition is that regulation, planning and management of the different elements of trade-supporting infrastructure are highly disjointed and without effective coordination. The lack of coordination among the many parties to a trade transaction and of appropriate *forums* for transparent discussions between public and private sectors regarding the simplification of procedures, documentation and (excessive) regulations inhibits exports and increases the costs of imports. There is thus a need to develop policies and administrative arrangements that bridge institutional as well as organizational disparities and inconsistencies.

C. An example of a Government's initiative: The creation of a logistics hub

62. The availability of an appropriately located logistics hub[4] could be part of an action initiated by a Government.

63. There are three specific issues to be considered regarding a strategy to create a logistics hub: the development of a logistics infrastructure, the reform of the legal and regulatory framework, and the need to enhance international cooperation.

64. First, in order to prepare for the development of a logistics infrastructure, large investments will have to be actively pursued in the context of a national development plan.

65. Then, regulations and legislation must be effective in ensuring the development and utilization of national transport, logistics technology and resources, and in promoting fair and effective competition to cope with changing environments. The Government could directly invest in and operate major transport infrastructure. Irrational transport pricing has caused such problems as financial burden to operators, a low level of service, demand distortion and a lack of capital resources. In order to get remove these obstacles, the Government could attempt partial privatization rather than complete privatization, and contract out the operation of the facilities to the private sector only in selected fields.

66. Finally, transportation is a major area of concern in the formulation of close economic ties among the countries of a region. Coordination between neighbouring countries may not be easy to achieve, but intergovernmental agreement is essential in discouraging wasteful competition and obstruction. To encourage intergovernmental and intermodal cooperation, it is initially necessary to encourage good relations between academics, researchers, economists, transport planners and private businessmen. Such cooperation should serve as a preliminary step towards finding ways of fully realizing the aspiration to build a single transport system in the region.

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4 Such a logistics hub, also called a "logistics platform", coud be part of an inland clearance depot (ICD) facility.